

Remarks

Claims 1-8 are currently pending in the patent application, and new claims 9-20 have been added. Applicant submits that the claim amendments are fully supported by the Specification as originally filed, and that no new matter has been added. For the reasons and arguments set forth below, Applicant respectfully submits that the claimed invention is allowable over the cited references.

In the Office Action dated January 18, 2008, the following objections and rejections are noted: the drawings stand objected to for not showing all the claim elements; claims 1-7 stand objected to for a grammatical error; claims 1-8 stand rejected under 35 U.S.C. § 112(2) for lack of antecedent basis; claims 1 and 8 stand rejected under 35 U.S.C. § 103(a) over the Goodman reference ("The Intel Pentium M Processor: Microarchitecture and Performance"); claims 1-6 and 8 stand rejected under 35 U.S.C. § 103(a) over the Wilkerson reference (U.S. Patent No. 7,143,272); and claim 7 stands rejected under 35 U.S.C. § 103(a) over the Wilkerson reference in view of the Chang reference ("Improving Branch Prediction Accuracy by Reducing Pattern History Table Interference").

Applicant respectfully traverses each of these objections and rejections.

With respect to the objection to the drawings, 37 C.F.R. § 1.81(a) states that a patent application should furnish drawings as necessary for the understanding of the subject matter sought to be patented. 37 C.F.R. § 1.83(a) further explains that the supplied drawings should show all the features specified in the claims. In this case, it has not been argued that Applicant has neglected to provide drawings, or details of the drawings, that are necessary for the understanding of the invention, but rather that a dependent feature recited in claim 7 is not shown. Applicant submits that step 108 shown in Fig. 1, which illustrates the step of determining branch outcome adequately shows and encompasses the subject matter recited in claim 7. For example, step 108 includes predicting branch outcome using branch history and/or system activity, and includes using them conditionally. Applicant submits that such illustration is sufficient for understanding the claimed invention. *See* M.P.E.P. § 608.02(e). For these reasons, Applicant requests reconsideration and withdrawal of the objection to the drawings.

Moreover, Applicant submits that the drawings have already twice been deemed as acceptable to the Patent Office in the Office Action mailed December 22, 2006 and in the

Final Office Action mailed June 19, 2007. As such, it appears that additional illustration of the features recited in claim 7 was not previously needed for an understanding of the invention. No reason has been given to allow Applicant to understand the basis for such a change of opinion. Thus, should the objection to the drawings be maintained, Applicant requests that additional support be provided sufficient for Applicant's understanding and allowing adequate response.

With respect to the objection to claims 1-7 for grammatical errors, Applicant submits that reciting the claimed subject matter as "apparatus" rather than "an apparatus" is grammatically acceptable. Moreover, one of skill in the art would be able to fully ascertain the scope of the claims as written. Nonetheless, for the sole purpose of expediting prosecution, and recognizing that amending the claims as suggested could not be seen as altering the claim scope, Applicant submits that the present amendment renders the objection moot. Withdrawal of the objection is therefore requested.

With respect to the § 112(2) rejection of claims 1-8, Applicant traverses the rejection and submits that the scope of the claims as written "would be reasonably ascertainable by those skilled in the art," and therefore not indefinite per M.P.E.P. § 2173.05. However, without acquiescing, Applicant submits that the present amendments have rendered the rejection moot. Reconsideration and withdrawal of the rejection is therefore requested.

Applicant respectfully traverses the § 103(a) rejection of claims 1 and 8 over the Goodman reference, which does not appear to disclose the recited features related to obtaining a measure of system activity since a previous branch, and using the system activity measure to predict the outcome of a conditional branch. The cited portions of Goodman disclose analyzing branches to determine if they have loop behavior, using counters to keep track of the loop iterations, and predicting the behavior accordingly. The loop counter information cannot be considered to be a measure of system activity that occurred since a previous branch as recited in Applicant's claims. For example, the loop counter is by definition confined to the loop. Loop counter information does not look at the history of system activity that has occurred since a previous branch, but rather is focused on current activity confined within the loop. Moreover, the techniques disclosed by the cited portions of Goodman are uniquely applicable to loop behavior, and as such there is no

reasonable expectation that one of skill in the art could modify them to achieve Applicant's invention.

For at least these reasons, Applicant submits that the § 103(a) rejection of claims 1 and 8 over the Goodman reference is improper, and requests that the rejection be reconsidered and withdrawn.

Applicant respectfully traverses the § 103(a) rejection of claims 1-6 and 8 over the Wilkerson reference, which does not appear to disclose the recited features related to obtaining a measure of system activity since a previous branch, and using the system activity measure to predict the outcome of a conditional branch. According to Applicant's understanding, Wilkerson discloses the use of branch and computation result history to predict branch outcomes. Such branch and computation histories do not equate to the system activity measure as recited in Applicant's claims. Applicant recognized and appreciated that the confidence of branch prediction based on measures like those disclosed by Wilkerson can vary greatly, and that branch predictions can fail under such conditions (*see, e.g.*, paragraphs 0005-0012). Applicant thus described and claimed the use of a system activity measure for conditional branch prediction.

Moreover, the Wilkerson reference recognizes that recent branch histories may not always adequately predict branch behavior, and thus discloses the use of more extensive branch and computation histories specific to individual branches and registers. As noted, such histories do not equate to the system activity measure recited by Applicant. One of skill in the art would understand the Wilkerson reference as providing a solution to inadequacies of using only recent branch histories, and would therefore find no reason to modify Wilkerson to additionally use system activity as claimed by Applicant.

Moreover, the techniques disclosed by the cited portions of the Goodman reference are uniquely applicable to loop behavior, and as such there is no reasonable expectation that one of skill in the art could modify them to achieve Applicant's invention.

For at least these reasons, Applicant submits that the § 103(a) rejection of claims 1-6 and 8 over the Wilkerson reference is improper, and requests that the rejection be reconsidered and withdrawn.

Applicant respectfully traverses the § 103(a) rejection of claim 7 over the Wilkerson reference in view of the Chang reference. Applicant submits that Chang appears to provide

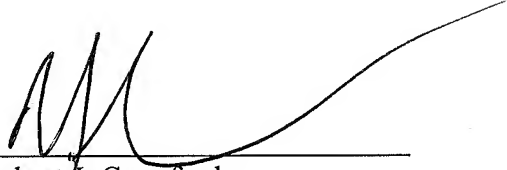
no teaching that would cure the deficiencies of the Wilkerson reference as noted above. Therefore, Applicant submits that the § 103(a) rejection of claim 7 is improper, and requests that the rejection be reconsidered and withdrawn.

Applicant further submits that newly added claims 9-20 recite allowable subject matter in view of the art of record. For example; claim 9 includes subject matter that corresponds to subject matter recited in claim 2; claim 11 includes subject matter that corresponds to subject matter recited in claim 3; claim 12 includes subject matter that corresponds to subject matter recited in claim 4; claim 13 includes subject matter that corresponds to subject matter recited in claim 4; claim 14 includes subject matter that corresponds to subject matter recited in claim 6; and claim 15 includes subject matter that corresponds to subject matter recited in claim 7. Claims 10 and 16 recite that the measure of system activity includes a supply current measurement. Claims 17-20 recite additional elements of the activity monitor recited in claim 1.

In view of the remarks above, Applicant believes that each of the rejections/objections has been overcome and the application is in condition for allowance. Should there be any remaining issues that could be readily addressed over the telephone, the Examiner is asked to contact the agent overseeing the application file, Peter Zawilski, of NXP Corporation at (408) 474-9063.

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